A Web-based Application to Manage Carbon Cycle Network Operations

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The GMD Carbon Cycle program has expanded considerably in the past few years. Since 2004, the surface network has added 4 fixed sites and 3 ocean crossings. The aircraft network has doubled in size with the addition of 12 sampling locations in North America. In 2005, more than 16,000 discrete samples were collected and analyzed for CO_2 , CH_4 , CO, H_2 , N_2O , SF_6 , and the stable isotopes of CO_2 and CH_4 . Approximately 2500 aircraft samples were also analyzed for an additional 28 compounds by the GMD HATS group. VOCs were also measured by INSTAAR, University of Colorado (CU) in nearly 1300 surface samples.

Operating a discrete measurement program that includes 62 surface sites, 26 aircraft sites, 5000 network flasks, 100 surface samplers, and 150 aircraft samplers is increasingly difficult. Logistics are further complicated as the number of laboratories measuring the air samples and the number of compounds measured increases. A high degree of organization and automation is essential to ensure that field sites have a steady supply of flasks and reliable equipment; and in Boulder, that samples are routed to the appropriate analytical systems and critical operational information is readily accessible to researchers.

To help manage the logistical and operational tasks of the carbon cycle observing network, we developed a web-based "Operations Manager". From any location, GMD and CU researchers have web-based access to the carbon cycle measurement and meta database. We will demonstrate several key features with emphasis on tasks which are likely relevant to other measurement programs.

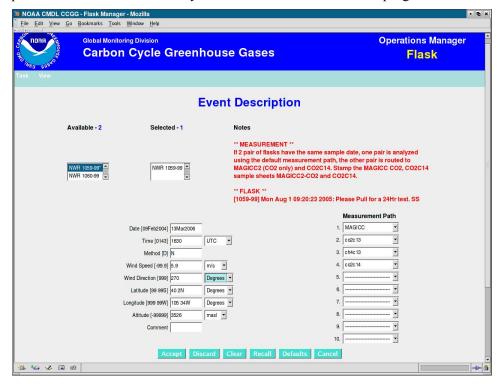


Figure 1. Entering sample collection details and the analysis path in Operations Manager.

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